

DIGITAL IF DEMODULATOR

ABSTRACT OF THE DISCLOSURE

A digital IF demodulator includes an analog-to-digital (A/D) converter that receives an analog IF signal and converts it to a digital IF signal. A parallel multiplier then down-converts the digital IF signal to a baseband signal having a video component and an audio component. The frequency down-conversion uses a parallel multiplier driven by an outer feedback loop that corrects gross frequency errors in said digital IF signal. The digital IF demodulator also includes a video recovery circuit that selects the video component from the baseband signal and further down-converts the baseband signal to a video baseband using a video complex mixer driven by an inner feedback loop that corrects fast phase perturbations in the video recovery circuit. Finally, the digital IF demodulator includes an audio recovery circuit that (i) receives said baseband signal from the parallel multiplier, and (ii) down-converts the audio component to an audio baseband signal using an audio complex mixer.